

**Claims**

1. An isolated and purified DNA fragment, which is the gene cluster for the anthracycline biosynthetic pathway of the bacterium *Streptomyces galilaeus*, being included in a 7 kb *XhoI-NotI* fragment and a flanked 8.5 kb *BglII* fragment of *S. galilaeus* genome.
2. The DNA fragment according to claim 1, which comprises the nucleotide sequence given in SEQ ID NO:14, or a part thereof having similar characteristics, or a sequence showing at least 84 % homology to said sequence.
3. A recombinant DNA, which comprises the DNA fragment of claim 1, or 2, or a part thereof having similar characteristics, cloned in the plasmid replicating in *Streptomyces* or in *E. coli*.
4. The recombinant DNA according to claim 3, which is the plasmid pSgs4 deposited in *S. lividans* strain TK24/pSgs4 with the accession number DSM 12998.
5. The recombinant DNA according to claim 3, which is the plasmid pSgc5 deposited in *E. coli* strain XL1BlueMRF'/pSgc5 with the accession number DSM 12999.
6. Use of the genes derived from the DNA fragment of claim 1 or 2 in the production of anthracycline metabolites.
7. Use of the genes derived from the DNA fragment of claim 1 or 2 to increase aclacinomycin production.
8. Use according to claim 6 or 7, wherein the genes are encoding an activator, a dehydratase, an oxidoreductase, a dTDP-glucose 4,6-dehydratase, a glycosyl transferase, an isomerase, an aklaviketone reductase, a polyketide assembler, a cyclase, an aminomethylase, a glucose-1-phosphate thymidyl transferase, and an aminotransferase.

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Chemical	Formula	Weight	Concentration	Volume	Mass	Concentration	Volume	Mass
Hydrogen	$H_2$	2.016	1.000	1.000	2.016	1.000	1.000	2.016
Helium	$He$	4.003	1.000	1.000	4.003	1.000	1.000	4.003
Lithium	$Li$	6.941	1.000	1.000	6.941	1.000	1.000	6.941
Boron	$B$	10.811	1.000	1.000	10.811	1.000	1.000	10.811
Carbon	$C$	12.011	1.000	1.000	12.011	1.000	1.000	12.011
Nitrogen	$N_2$	28.014	1.000	1.000	28.014	1.000	1.000	28.014
Oxygen	$O_2$	31.999	1.000	1.000	31.999	1.000	1.000	31.999
Fluorine	$F_2$	38.001	1.000	1.000	38.001	1.000	1.000	38.001
Neon	$Ne$	20.180	1.000	1.000	20.180	1.000	1.000	20.180
Sodium	$Na$	22.990	1.000	1.000	22.990	1.000	1.000	22.990
Magnesium	$Mg$	24.305	1.000	1.000	24.305	1.000	1.000	24.305
Aluminum	$Al$	26.982	1.000	1.000	26.982	1.000	1.000	26.982
Silicon	$Si$	28.086	1.000	1.000	28.086	1.000	1.000	28.086
Phosphorus	$P_4$	123.895	1.000	1.000	123.895	1.000	1.000	123.895
Sulfur	$S_8$	256.536	1.000	1.000	256.536	1.000	1.000	256.536
Chlorine	$Cl_2$	70.906	1.000	1.000	70.906	1.000	1.000	70.906
Argon	$Ar$	39.948	1.000	1.000	39.948	1.000	1.000	39.948
Potassium	$K$	39.098	1.000	1.000	39.098	1.000	1.000	39.098
Calcium	$Ca$	40.078	1.000	1.000	40.078	1.000	1.000	40.078
Scandium	$Sc$	44.956	1.000	1.000	44.956	1.000	1.000	44.956
Titanium	$Ti$	47.883	1.000	1.000	47.883	1.000	1.000	47.883
Vanadium	$V$	50.942	1.000	1.000	50.942	1.000	1.000	50.942
Chromium	$Cr$	51.996	1.000	1.000	51.996	1.000	1.000	51.996
Manganese	$Mn$	54.938	1.000	1.000	54.938	1.000	1.000	54.938
Iron	$Fe$	55.845	1.000	1.000	55.845	1.000	1.000	55.845
Cobalt	$Co$	58.933	1.000	1.000	58.933	1.000	1.000	58.933
Nickel	$Ni$	58.693	1.000	1.000	58.693	1.000	1.000	58.693
Copper	$Cu$	63.546	1.000	1.000	63.546	1.000	1.000	63.546
Zinc	$Zn$	65.380	1.000	1.000	65.380	1.000	1.000	65.380
Gallium	$Ga$	69.723	1.000	1.000	69.723	1.000	1.000	69.723
Germanium	$Ge$	72.630	1.000	1.000	72.630	1.000	1.000	72.630
As	$As$	74.922	1.000	1.000	74.922	1.000	1.000	74.922
Se	$Se$	78.960	1.000	1.000	78.960	1.000	1.000	78.960
Br	$Br_2$	159.808	1.000	1.000	159.808	1.000	1.000	159.808
Krypton	$Kr$	83.801	1.000	1.000	83.801	1.000	1.000	83.801
Rubidium	$Rb$	85.468	1.000	1.000	85.468	1.000	1.000	85.468
Strontium	$Sr$	87.62	1.000	1.000	87.62	1.000	1.000	87.62
Yttrium	$Y$	88.906	1.000	1.000	88.906	1.000	1.00	

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